

EVALUATING STORMWATER IN THE CONTEXT OF THE PORTLAND HARBOR RI/FS

Source control personnel from DEQ, EPA and the City of Portland have been meeting regularly over the past few months to talk about Portland Harbor stormwater issues. These discussions were prompted by a number of unanswered questions that need to be addressed, such as:

- What is the impact of stormwater on Portland Harbor sediment and water?
- How do we determine whether stormwater will recontaminate the harbor following cleanup?
- How will the LWG evaluate stormwater in the context of the RI/FS?
- How will EPA evaluate stormwater in the context of the ROD?

These and other related questions are organized in the table below, together with the group's thoughts on how they should be addressed. The table describes a framework for evaluating the role of stormwater in Portland Harbor and determining what needs to be done to control it as a result. This framework will be presented to the LWG and other stakeholders for consideration and feedback.

The group continues to meet to map out the path forward at a finer level of detail, with the ultimate objective of ensuring that the LWG will have stormwater data of sufficient quality and quantity to complete the in-water RI/FS.

In the near term, the group's objectives are:

1. To improve the understanding of the extent to which stormwater is part of the problem in Portland Harbor, which will help to define appropriate "sideboards" to work within when developing future data collection plans
2. To develop a stormwater workplan for the upcoming year, including any data collection, pilot studies, or analytical efforts that should be initiated this year in order to achieve the objectives in a timely fashion.
3. To meet with LWG to present the framework and engage in a discussion about the path forward for stormwater and how to get there.

More information on these objectives will be provided in subsequent documents.

PROPOSED FRAMEWORK FOR EVALUATION STORMWATER IN PORTLAND HARBOR

OVERARCHING QUESTION	
What is the risk that stormwater will recontaminate Portland Harbor sediments or river water following clean up?	<p>Our work on answering this question is proceeding on two main fronts:</p> <ol style="list-style-type: none"> 1. understanding how stormwater contaminants contribute to risk in Portland Harbor (see RI/FS-related questions below) 2. implementing source control measures and evaluating/ensuring their effectiveness (see Source Control-related questions below)
RI/FS-RELATED QUESTIONS	
What is the impact of stormwater on Portland Harbor sediments and water column? - OR - How does the load of contaminants coming into Portland Harbor from stormwater discharges affect the concentration (or mass?) of risk drivers in the water column and river sediment?	<p>This question is broken out into several sub-questions listed below.</p> <p><i>Background: Currently, most stormwater samples being collected in Portland Harbor are grab samples that are analyzed to determine the presence and concentrations of COIs. This information is being used as laid out in the JSCS, i.e., to screen stormwater and catch basin sediments against SLVs, prioritize these sites according to the JSCS protocol, and implement source control measures on each site as appropriate. This data is useful for screening but is not very useful for RI/FS questions because the sampling protocol was not designed to produce data for calculating contaminant loads.</i></p>
(a) How do we quantify the amount of contaminants in stormwater discharge?	There are numerous approaches and a substantial amount of literature discussing the pros and cons of each. To some extent, the approach to answering these questions will vary depending on the scale under consideration (a single outfall, an AOPC/SMA, or harbor-wide). Before determining what method(s) would be most appropriate for our needs, we need to establish our Data Quality Objectives to specify what types, quality and quantity of data will be sufficient for decision making.
(b) How will we determine the change in contaminant concentration in Portland Harbor sediments or water resulting from the stormwater discharges?	The Portland Harbor Fate and Transport model is being developed to serve this purpose.
(c) How is this information relevant to the RI/FS or later stages of the CERCLA process (i.e., how do we envision it being used?)?	This information is necessary for evaluating recontamination risk. It will be useful for evaluating remedial alternatives in the Feasibility Study and to contribute to the design of remedial actions at the RD/RA stage.
What is the significance of stormwater discharges in Portland Harbor relative to other sources of contaminants (upstream,	The answer to this question will likely be needed for the feasibility study. However, it would also be useful information to have for defining our initial Data Quality Objectives because it

groundwater, bank erosion, etc.)?	helps us gauge the level of confidence we need in the stormwater data in the absence of RI/FS data that would otherwise inform these decisions. We hope to gain some preliminary insight into this matter with the modeling work planned for this winter.
Are the methods, assumptions and decision criteria we used to make these determinations appropriate for this use; i.e., do we need to undertake any studies or collect data to demonstrate their validity for this context?	For the most part, we have not yet defined our methods, assumptions and decision criteria, so it is premature to answer this question. However, we will be having discussions early this fall to see whether we can predict some of the questions we'll need to answer and decide whether we should begin collecting data to meet these needs during the 2006-2007 water year.
SOURCE CONTROL-RELATED QUESTIONS	
How do we determine the source control needs for each site or outfall?	<p>This is an iterative process. The first phase of work is carried out as described in the JSCS. During this phase, the need for source control measures is determined by comparing concentrations of COIs in catch basin and stormwater samples against conservative screening values. Or, at sites where the need for source control is less certain, a mass loading analysis may be done to help make that determination.</p> <p>The adequacy of these efforts will be reevaluated as information from the in-water RI/FS becomes available. There could be several iterations of this review, for example, following issuance of the Risk Assessment, after RAOs and ARARs are set in the ROD, and/or during the RD/RA phase.</p>
Has source control been adequately implemented in Portland Harbor uplands? Are stormwater control measures adequate to ensure long term effectiveness? If not, what else is needed?	<p>We can't definitively answer these questions until the clean up levels are established. At that time, we could presumably use the Fate and Transport model and stormwater loading data to determine whether sources have been controlled to a level where they do not cause an unacceptable in-water risk.</p> <p>Once we understand the level of control that is needed, we can evaluate the adequacy of existing long-term controls (general, individual and MS4 permits) to determine whether additional controls are needed. This may involve reviewing or collecting data to evaluate the effectiveness of these permits at controlling Portland Harbor risk drivers that aren't currently addressed or monitored under these permits.</p>